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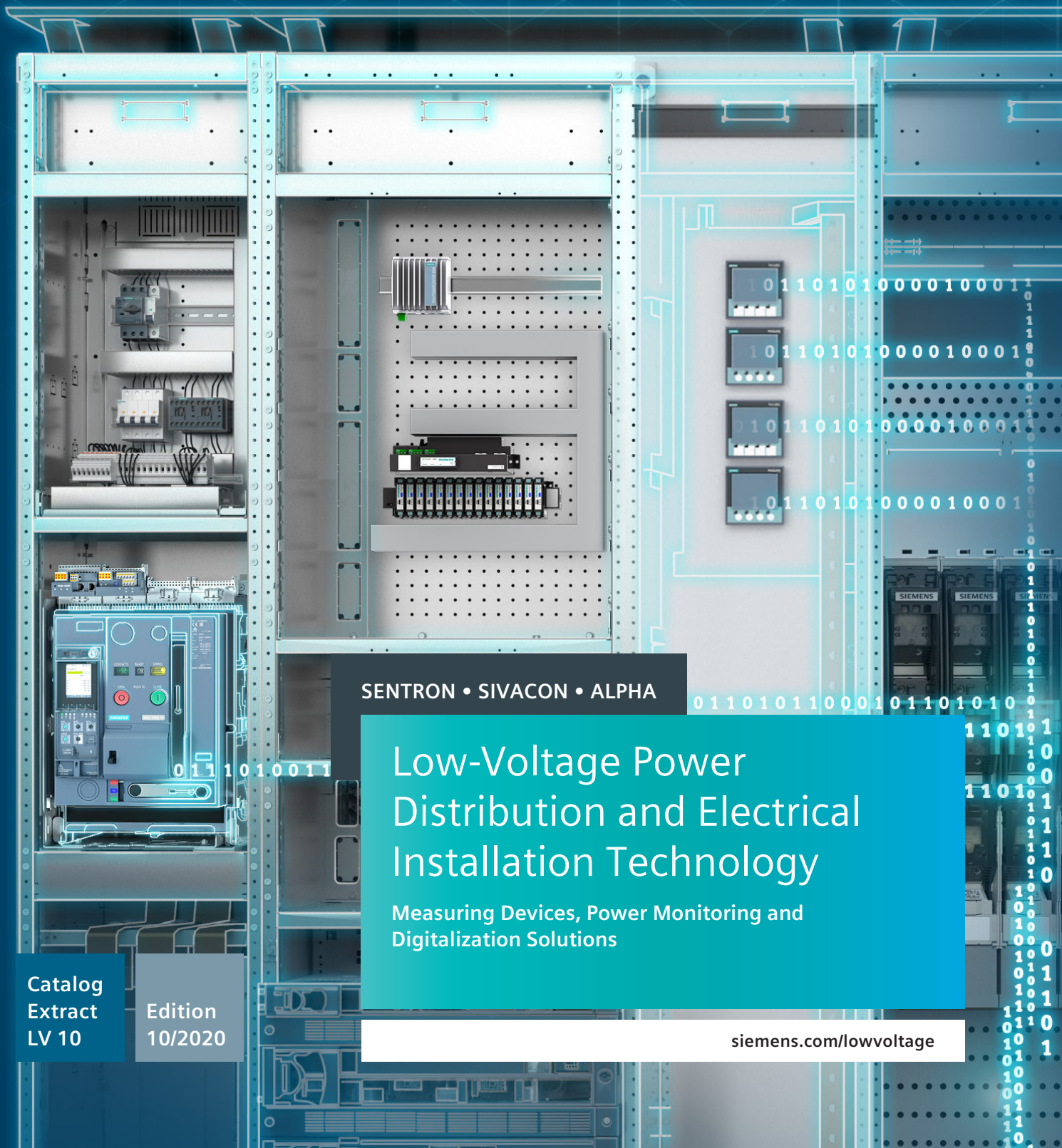

SENTRON • SIVACON • ALPHA

Low-Voltage Power Distribution and Electrical Installation Technology

Measuring Devices, Power Monitoring and Digitalization Solutions

Catalog Extract LV 10

Edition 10/2020

siemens.com/lowvoltage

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Making sure power makes its way

Consistent, safe and intelligent low-voltage power distribution and electrical installation technology

Whether industries, infrastructures or buildings: Each environment depends on a reliable power supply.

Which is why products and systems featuring maximum safety and optimum efficiency are in demand. This comprehensive portfolio for low-voltage power distribution and electrical installation technology covers every requirement – from the switchboard to the socket outlet.

We are there when you need us

Your personal contact can be found at
www.siemens.com/lowvoltage/contact

Catalog LV 10 · 10/2020

You will find the latest edition and all future editions in the Siemens Industry Online Support at
www.siemens.com/lowvoltage/catalogs

Refer to the Industry Mall for current prices
www.siemens.com/industrymall

The products and systems listed in this catalog are developed and manufactured using a certified quality management system in accordance with DIN EN ISO 9001:2008.

Technical data
The technical specifications are for general information purposes only. Always heed the operating instructions and notices on individual products during assembly, operation and maintenance.

All illustrations are not binding.

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Low-Voltage Power Distribution and Electrical Installation Technology

	Introduction	I/2
Protecting	Air Circuit Breakers	1/1
	Molded Case Circuit Breakers	2/1
	Miniature Circuit Breakers	3/1
	Residual Current Protective Devices / Arc Fault Detection Devices (AFDDs)	4/1
	Switching Devices	5/1
	Overvoltage Protection Devices	6/1
	Fuse Systems	7/1
Protecting, Switching and Isolating	Switch Disconnectors	8/1
Switching and Isolating	Transfer Switching Equipment and Load Transfer Switches	9/1
Measuring and Monitoring	Measuring Devices, Power Monitoring and Digitalization Solutions	10/1
	Monitoring Devices	11/1
Distribution	Transformers, Power Supply Units and Socket Outlets	12/1
	Busbar Systems	13/1
	Terminal Blocks	14/1
	Power Distribution Boards, Motor Control Centers and Distribution Boards	15/1
	Busbar Trunking Systems	16/1
	System Cubicles, System Lighting and System Air-Conditioning	17/1
	Appendix	A/1

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Easy, reliable, cost-efficient

There are many advantages to be had from keeping a watchful eye on your energy consumption: in addition to cost savings through optimized consumption, you ensure increased resilience with the monitoring of power supply systems and network quality in infrastructure and industrial plants.

At the same time, systematic power monitoring increases your awareness of actual energy consumption, making it a key prerequisite for greater energy efficiency.

Integration into open IoT operating systems such as MindSphere results in even greater optimization potential.

What is more, with a power monitoring system you lay the foundation for regular energy audits and a corporate energy management system according to ISO 50001 and ISO 50003.

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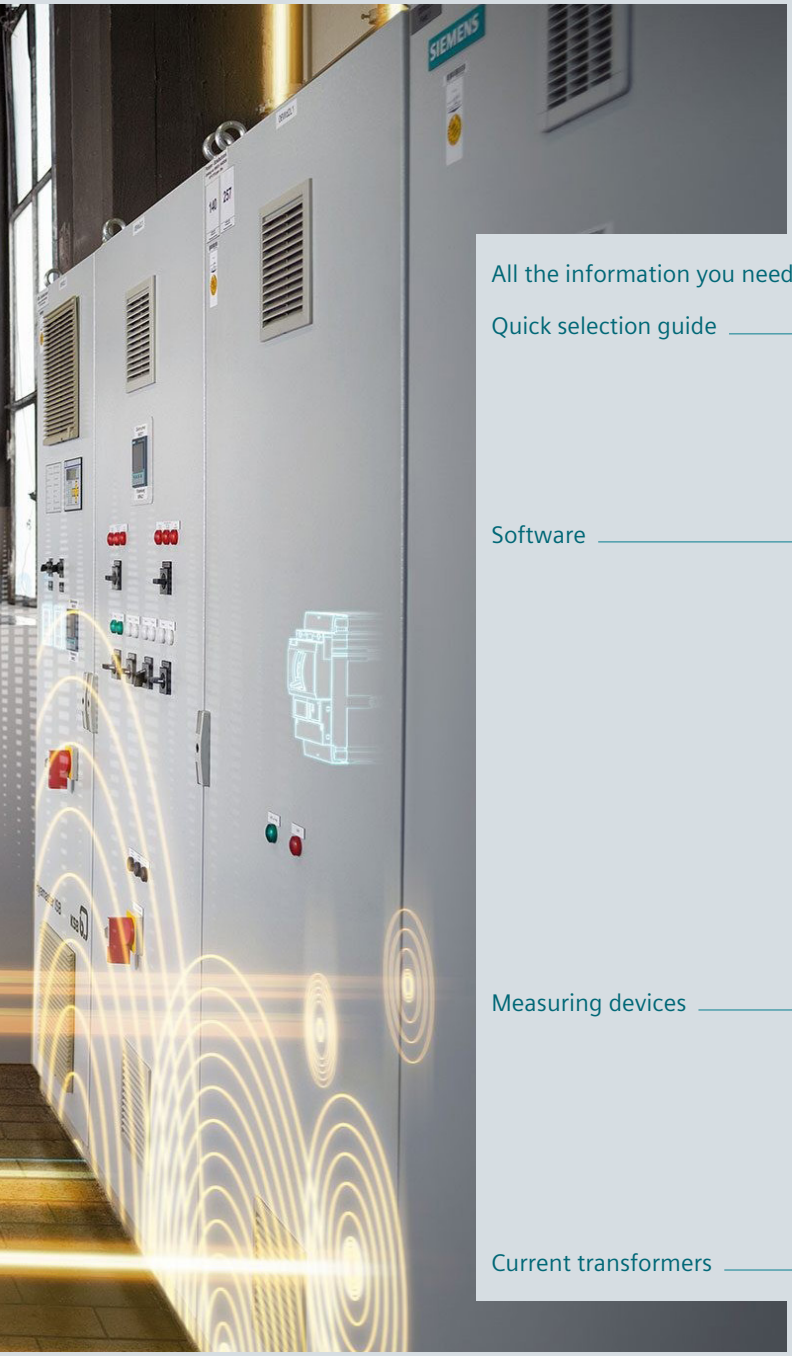
Measuring Devices, Power Monitoring and Digitalization Solutions



All the information you need 10/2

Quick selection guide 10/4

- Power monitoring 10/4
- Hardware components 10/6
- Accessories 10/8

Software 10/10

- SENTRON powerconfig 10/10
- SENTRON powermanager V3 10/11
- SENTRON powermanager V4 10/12
- 7KN Powercenter 10/13
- SENTRON powermind new 10/14
- SIMATIC Energy Suite 10/16
- SIMATIC Modbus/TCP SENTRON PAC 10/16
- PAC/3WL/3VA SIMATIC PCS 7 library 10/17

Measuring devices 10/18

- 7KM PAC measuring devices 10/18
- 7KT PAC measuring devices 10/22
- SEM3 multichannel current measuring system 10/24
- Time and pulse counters 10/26

Current transformers 10/28

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A multitude of additional information ...

Information + ordering

All the important things at a glance

Information to get you started

For information about measuring devices, power monitoring and digitalization solutions, please visit our websites
www.siemens.com/powermonitoring

www.siemens.com/lowvoltage/digitalization

Contact persons in your region

We are there when you need us

You can find your local contacts at
www.siemens.com/lowvoltage/contact

Your product in detail

The Siemens Industry Online Support portal provides comprehensive information
www.siemens.com/lowvoltage/product-support

- Technical basic information – SENTRON power monitoring and digital solutions (109769851)
- Brochure – Reliable, sustainable, and efficient – TÜV-certified power monitoring system in accordance with ISO 50001 (109744679)
- Brochure – SENTRON portfolio for power monitoring (109744725)

The relevant tender specifications can be found at
www.siemens.com/lowvoltage/tenderspecifications

Our video range

Siemens YouTube channel

- Power monitoring (general)
  bit.ly/2lZ9QqC

Everything you need for your order

Refer to the Industry Mall for an overview of your products

- Measuring devices and power monitoring
  sie.ag/2kTH9Lz
- Digitalization solutions sie.ag/2oIIiNi
- Library for SIMATIC sie.ag/2kpbwcs
- SENTRON powermanager / SENTRON powerconfig
  sie.ag/2kTJjuF

Direct forwarding to the individual products in the Industry Mall by clicking on the Article No. in the catalog or by entering this web address incl. Article No.
www.siemens.com/product?Article No.

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... can be found in our online services

Commissioning + operation

Configuration software

SENTRON powerconfig

The combined commissioning and service tool for communication-capable measuring devices and circuit breakers from the SENTRON portfolio.
www.siemens.com/powerconfig

Free download SENTRON powerconfig mobile via:
App Store und Play Store

Your product in detail

The Siemens Industry Online Support portal provides detailed technical information
www.siemens.com/lowvoltage/product-support

- Operating instructions
- Certificates

Engineering data for CAD or CAE systems are available in the CAx Download Manager at
www.siemens.com/lowvoltage/cax

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Competent expert advice on technical questions with a wide range of demand-optimized services for all our products and systems.

Assistance with technical queries is provided at
www.siemens.com/lowvoltage/support-request

We offer a comprehensive portfolio of services.
You can find your local contacts at
www.siemens.com/lowvoltage/contact

You can find further information on services at
www.siemens.com/service-catalog

Manuals

Manuals are available for downloading in Siemens Industry Online Support at
www.siemens.com/lowvoltage/manuals

- Configuration manual – Measuring devices and power monitoring (45315973)
- Equipment manual – 7KT PAC1600 energy meter (109759827)
- Equipment manual – 7KT PAC1600 multimeter (109760293)
- System manual – 7KT multichannel current measuring system (109483442)
- Equipment manual – PAC2200 measuring device (109746835)
- Equipment manual – SENTRON PAC3200 power monitoring device (26504150)
- Equipment manual – PAC3200T measuring device (109746833)
- System manual – SENTRON PAC4200 power monitoring devices (34261595)
- Equipment manual – PAC3100 measuring device (37881976)
- Equipment manual – SENTRON PAC5100/5200 7KM5212/5412 (109477872)
- Equipment manual – 7KM PAC3120 and 7KM PAC3220 (109767307)
- Communication manual – SENTRON PAC5100/5200 7KM5212/5412 (109477870)
- Communication manual – 3VA with IEC and UL certification (98746267)
- SEM3™ – Embedded Micro Metering Module™ (109748928)
- Equipment manual – 7KN Powercenter 3000 (109763838)
- Quick Installation Guide – 7KN POWERCENTER 3000 (109766001)

Training and tutorials

Our training courses can be found at
www.siemens.com/sitrain-lowvoltage

- Power monitoring with SENTRON (WT-LVAEM)
- Energy management – Basic training (LV-EMSENTB)
- Energy management – Training for experts (LV-EMSENTE)
- Communication with SENTRON components (LV-COM)

Technical overview – Measuring devices, power monitoring and digitalization solutions

The fast way to get you to our online services

This page provides you with comprehensive information and links on measuring devices, power monitoring and digitalization solutions

www.siemens.com/lowvoltage/product-support (109764480)

Power monitoring

Software

	Local monitoring systems		
	Web	App	
	Web-Interface integriert	7KT PAC1200	SENTRON powerconfig
Functions for power monitoring			
Commissioning of measuring devices and circuit breakers	–	–	■
Displaying current data	■	■	■
Displaying / evaluating current / historical values	■	■	■
Prepared analyses / reports	–	–	–
Customized reporting	–	–	–
Data analysis in the cloud			
Additionally for energy management			
Switching loads on and off	–	–	–
Operating environment			
Use	Free of Charge	Free of Charge	Free of Charge
System requirements	Browser	Android, iOS	Android, iOS
Suitable according to ISO 50001	–	–	–
Connection of non-Siemens devices	–	–	–
Integrated cloud interface	–	–	–
More information		from page 10/23	from page 10/10
Measuring devices and circuit breakers			
Measuring devices for industrial applications	7KM PAC1020	–	–	–
	7KM PAC2200 / PAC2200 CLP	■	–	–
	7KM PAC3200T	■	–	–
	7KM PAC3120	–	–	–
	7KM PAC3220	■	–	■
	7KM PAC4200	■	–	■
	7KM PAC5100	■	–	–
	7KM PAC5200	■	–	–
Measuring devices for buildings and infrastructure	7KT PAC1200	■	■	–
	7KT PAC1600	–	–	–
	SEM3	■	–	–
Circuit breakers	3WL	–	–	■
	3WL10 / 3VA27	–	–	–
	3VA ETU5/8	–	–	■
Other Modbus devices		–	–	■

■ Function available □ Available with limited functionality – Function not available

	PC-basiert			Cloud	World of SIMATIC	
					TIA Portal	
	SENTRON powerconfig	SENTRON powermanager	7KN Powercenter 3000	SENTRON powermind (MindSphere)	SIMATIC TIA Portal integrated	SIMATIC TIA Portal capable
	■	–	–	–	■	–
	■	■	■	■	■	■
	■	■	■	■	■	■
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		■	–	■	–	–
	–	■	–	–	■	■
	Free of Charge	License and trial license	–	Subscription	–	–
	Windows X64	Windows X64	–	Browser	–	–
	–	■ (TÜV)	■	■	–	–
	–	■	■	■	–	–
	–	■	■	■	–	–
	from page 10/10	from page 10/11	from page 10/13	from page 10/14		
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10

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Hardware components

Industry

	7KM PAC1020 new	7KM PAC2200	7KM PAC2200 CLP new	7KM PAC3200T	7KM PAC3120	7KM PAC3220
Installation type						
Front mounting | Standard mounting rail | Screw mounting	■ | – | –	– | ■ | –	– | ■ | –	– | ■ | –	■ | – | –	■ | – | –
Withdrawable | Fixed-mounted	– | –	– | –	– | –	– | –	– | –	– | –
Measuring connection						
Direct measurement	–	■	■	–	–	–
Transformer measurement	■	■	■	■	■	■
Multichannel measuring system	–	–	–	–	–	–
Suitable transformers						
Window-type current transformers	■	■	■	■	■	■
Folding transformer	■	■	■	■	■	■
Integrated transformer	–	–	–	–	–	–
Commissioning						
MID version	– | –	■ | –	■ | ■	– | –	– | –	– | –
Max. input voltage L-L/L-N	400 V / 230 V	400 V / 230 V	400 V / 230 V	400 V / 230 V	690 V / 400 V	690 V / 400 V
Transformer connection version	x/1 A or x/5 A	x/1 A or x/5 A	x/1 A or x/5 A	x/1 A or x/5 A	x/1 A or x/5 A	x/1 A or x/5 A
Direct connection version	–	65 A	65 A	–	–	–
DC power supply unit with extra-low voltage version	–	–	–	–	DC 22 ... 65 V	DC 22 ... 65 V
Single-phase counter version	–	■	–	–	–	–
Electrically isolated voltage inputs	–	–	–	–	–	–
Version without display (for web interface)	–	–	–	■	–	–
Evaluation						
Measured quantities						
Average value of measured values	–	■	■	■	■	■
Voltage, current, frequency	■	■	■	■	■	■
Power, power factor	■	■	■	■	■	■
Energy measurement						
Daily energy storage	–	60 days	60 days	60 days	60 days	60 days
Apparent | Active | Reactive energy | cos φ	– | ■ | ■ | –	■ | ■ | ■ | –	■ | ■ | ■ | –	■ | ■ | ■ | –	■ | ■ | ■ | –	■ | ■ | ■ | –
Distortion factor THD (voltage, current)	–	–	–	■	■	■
Harmonics (voltage, current)	–	–	–	–	–	–
Phase angle/phase chart	–	–	–	–	–	–
Load profile recording	–	–	■	–	–	–
Flicker acc. to IEC 61000-4-15	–	–	–	–	–	–
Monitoring functions						
Operating hours counter	–	–	–	■	■	■
Limit monitoring	–	–	–	■	■	■
Logic functions	–	–	–	■	■	■
Event log	–	–	–	–	–	–
Gateway function	–	–	–	–	–	–
Reporting acc. to EN 50160	–	–	–	–	–	–
Integrated fault recorder	–	–	–	–	–	–
Integrated communication interfaces						
Digital inputs/digital outputs	1/1	1/1	1/1	1/1	2/2	2/2
S0-Interface	■	■	■	■	■	■
M-Bus	–	■	–	–	–	–
RS485 (Modbus RTU)	■	■	–	–	■	–
Ethernet with Modbus TCP	–	■	■	■	–	■
BACnet	–	–	–	–	–	–
More information						
Catalog LV 10 – 10/2020	See page 10/18	See page 10/18	See page 10/18	See page 10/18	See page 10/18	See page 10/18

Industry			Buildings and infrastructure			Circuit breakers		
7KM PAC4200	**7KM PAC5100**	**7KM PAC5200**	**7KT PAC1200**	**7KT PAC1600**	**SEM3**	**3WL**	**3WL10 / 3VA27**	**3VA ETU8**
■ | – | –	■ | ■ | –	■ | ■ | –	– | ■ | –	– | ■ | –	– | – | ■	– | – | –	– | – | –	– | – | –
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690 V / 400 V x/1 A or x/5 A	690 V / 400 V x/1 A or x/5 A	690 V / 400 V x/1 A or x/5 A	400 V / 230 V x/5 A	400 V / 230 V x/5 A	480 V / 277 V 50 … 1200 A / 0,1 A	690 V / 400 V integrated	690 V / 400 V integrated	690 V / 400 V integrated
–	–	–	40 / 63 A	63 / 80 A	–	–	–	–
DC 22 … 65 V	–	–	–	–	–	DC 24 V	DC 24 V	DC 24 V
–	–	–	■	■	■	–	–	–
–	■	■	–	–	–	–	–	–
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■ | ■ | ■ | ■	■ | ■ | ■ | ■	■ | ■ | ■ | ■	– | ■ | ■ | –	■ | ■ | ■ | –	■ | ■ | ■ | ■	■ | ■ | ■ | ■	■ | ■ | ■ | ■	■ | ■ | ■ | ■
■	■	■	–	–	–	■	–	■
2nd to 64th	2nd to 40th	2nd to 40th	–	–	–	2nd to 29th	–	–
■	■	■	–	–	–	–	–	–
■	–	■	–	–	■	■	■	■
–	–	■	–	–	–	–	–	–
■	–	–	–	■	–	■	–	■
■	■	■	–	■	–	■	■	■
■	■	■	–	–	■	–	–	–
>4000 events	■	■	–	–	■	■	■	■
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2 / 2	0 / 2	0 / 2	–	1 / 1	2 / 1	■	■	■
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See page 10/18	See page 10/18	See page 10/18	See page 10/23	See page 10/22	See page 10/24	See page 1/4	See page 1/4 See page 2/12	See page 2/12

Accessories

Communication modules

	7KM Switched Ethernet PROFINET / Modbus TCP	7KM PROFIBUS DP	7KM RS485 Modbus RTU
Industry			
7KM PAC1020 new	–	–	–
7KM PAC2200	–	–	–
7KM PAC2200 CLP new	–	–	–
7KM PAC3200T	–	–	–
7KM PAC3120	–	–	–
7KM PAC3220	■	■	■
7KM PAC4200	■	■	■
7KM PAC5100	–	–	–
7KM PAC5200	–	–	–
Buildings and infrastructure			
7KT PAC1200	–	–	–
7KT PAC1600	–	–	–
SEM3	–	–	–
Circuit breakers			
3WL	–	–	–
3WL10 / 3VA27	–	–	–
3VA ETU5/8	■	■	■

Expansion modules		Current transformers		
7KM PAC 4DI/2DO	**7KM PAC I(N), I(Diff), analog**	**4NC Current transformers**	**7KT Current transformers**	**3NJ calibrated current transformers**
–	–	■	■	■
–	–	■	■	■
–	–	–	–	■
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10

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SENTRON powerconfig

Configuration software for commissioning and maintenance

SENTRON powerconfig is available free of charge at
www.siemens.com/powerconfig

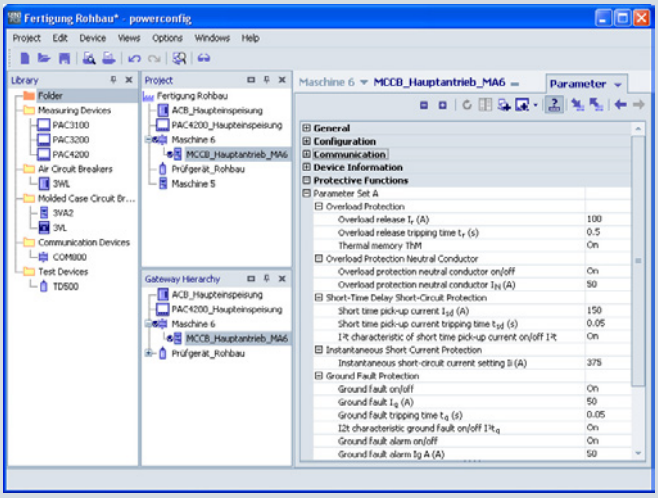
You can find more information on the Internet at
www.siemens.com/sentron

Free download SENTRON powerconfig mobile via:

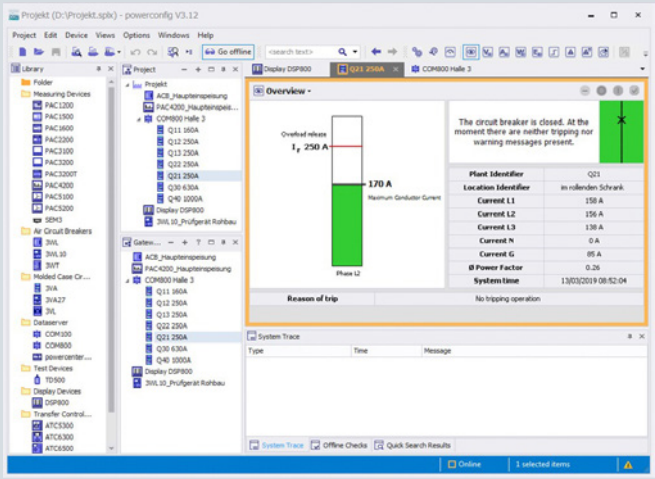
App Store

Play Store

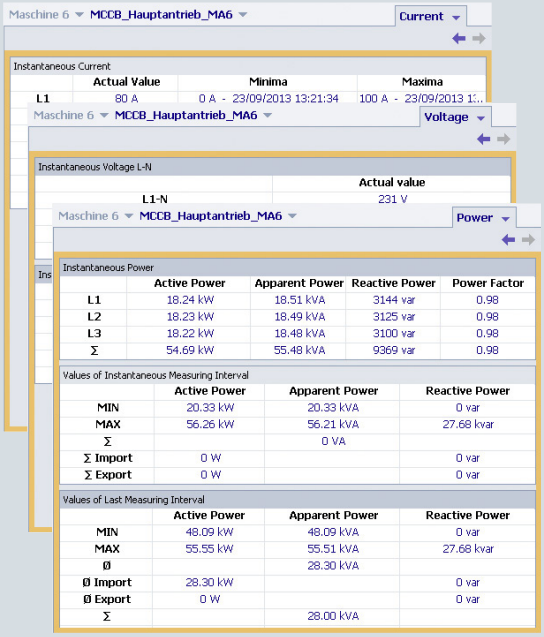
- Software tool for the efficient commissioning and diagnostics of communication-capable SENTRON components
- Supports all PAC measuring devices incl. expansion modules, 3WL/3VA circuit breakers and further communication-capable components, e.g. ATC6300
- Service functions:
  - Firmware updates
  - Switching of language packs for 7KM PAC measuring devices
- General range of functions:
  - Facilitates the parameterization of the devices
  - Saving and printing of device settings
  - Monitoring, saving and printing of instantaneous measured quantities
  - Execution of specific device functions, such as resetting of devices and setting of energy counters
- Additional functional scope with 7KM PAC4200 and 3VA:
  - Readout of data stored in the device (events, load profile history, daily energy counters)
  - Saving in csv format



Setting of parameter values



Display of the circuit breaker state



Display of actual measured quantities

Quick selection guide, page 10/4

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SENTRON powermanager V3

PC-based power monitoring software

New in SENTRON powermanager 3.6

- Support of new devices:
  - PAC3120
  - PAC3220 with firmware V2.1

Version	Description	Article No.
powermanager V3.5		
Basic Package	Full product license for up to 10 devices, installation for client/server, web access	3ZS2711-0CC30-0YA0
Trial license	Full product license limited to 60 days for up to 10 devices, incl. "Expert" and "Web" option packs Available free of charge at **https://support.industry.siemens.com/cs/ww/en/view/64850998**	
V3.x device expansions		
Device Pack (20)	Device expansion license for up to 20 devices	3ZS2711-0CC30-0YD0
Device Pack (50)	Device expansion license for up to 50 devices	3ZS2712-0CC30-0YD0
Device Pack (100)	Device expansion license for up to 100 devices	3ZS2713-0CC30-0YD0
Device Pack (200)	Device expansion license for up to 200 devices	3ZS2714-0CC30-0YD0
Device Pack (500)	Device expansion license for up to 500 devices	3ZS2715-0CC30-0YD0
Device Pack (1000)	Device expansion license for up to 1000 devices	3ZS2716-0CC30-0YD0
Option packs		
"Expert" option pack	Option for creating/presenting any number of freely configured images	3ZS2710-2CC20-0YH0
"Client (5)" option pack	Expansion for up to 5 clients	3ZS2710-3CC00-0YD0
"Distributed Systems (2)" option pack	Option for the connection of 2 autonomous powermanager systems for the exchange of measured values and alarms	3ZS2718-1CC00-0YH0
"Distributed Systems (5)" option pack	Option for the connection of 5 autonomous powermanager systems for the exchange of measured values and alarms	3ZS2718-2CC00-0YH0
„Distributed Systems (10)“ option pack	Option for the connection of 10 autonomous powermanager systems for the exchange of measured values and alarms	3ZS2718-3CC00-0YH0
„OPC UA Server“ option pack	Option pack for data exchange with other processing platforms via OPC UA	3ZS2710-4CC30-0YD0
Update powermanager V2.0 to V3.0		
Update license	From V2.0 Lean to V3.x (10)	3ZS2711-0CC30-0YE0
Update license	From V2.0 Standard to V3.x (50)	3ZS2712-0CC30-0YE0
Update license	From V2.0 Maximum to V3.x (100)	3ZS2713-0CC30-0YE0
Update license	From V2.0 Maximum to V3.x (200)	3ZS2714-0CC30-0YE0

Quick selection guide, page 10/4

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SENTRON powermanager V4

PC-based power monitoring software

SENTRON powermanager V4.2

SENTRON powermanager V4 is based on a new platform with advanced graphical capabilities and a standard SQL database. The workflows for setting up the system, creating devices, graphically displaying the device data and processing it in reports have been fundamentally revised. Unlike with V4.1, PAC3120 and PAC3220 are now also supported.

Two additional graphical options can now be used to create customer-specific graphics. The „Graphics Editor 60 Days" option is limited to 60 days of use and is aimed at end users who want to create graphics during the setup phase. While the „Engineering License" option is valid for 1 year and is aimed at Siemens partners such as control cabinet builders who create SENTRON powermanager applications for end users; the option is enabled via a „dongle".

The „Trial" license gives customers the opportunity to gain initial experience with SENTRON powermanager during a 60-day test phase. The application can still be used by purchasing a regular license.

The migration of existing SENTRON powermanager V3.x projects will be supported as of a future SENTRON powermanager version.

You can find more information on the Internet at
www.siemens.com/powermanager

You can find training courses on the Internet at
www.siemens.com/sitrain-lowvoltage

Version	Description	Article No.
powermanager V4.2		
Extended Package	Full product license for up to 10 devices, installation for client/server, web access	7KN2710-2CE40-0YC0
Trial license	Full product license limited to 60 days for up to 10 devices, incl. all functions; software download via SIOS Portal **https://support.industry.siemens.com/cs/ww/en/view/109771760** A free license for one-time use (limited to 60 days) must also be requested via **powermanagerlicence.de@siemens.com**	
Device expansions		
Device Pack (20)	Device expansion license for up to 20 devices	7KN2711-1CE40-0YC0
Device Pack (50)	Device expansion license for up to 50 devices	7KN2711-2CE40-0YC0
Device Pack (100)	Device expansion license for up to 100 devices	7KN2711-3CE40-0YC0
Device Pack (200)	Device expansion license for up to 200 devices	7KN2711-4CE40-0YC0
Device Pack (500)	Device expansion license for up to 500 devices	7KN2711-5CE40-0YC0
Device Pack (1000)	Device expansion license for up to 1000 devices	7KN2711-6CE40-0YC0
Option packs		
"Graphics Editor 60 Days" option pack	Option for creating/presenting any number of freely configured images, Validity period limited to 60 days	7KN2712-0CE40-0YC0
„Engineering License" option pack	Option for creating custom-made SENTRON powermanager applications, e.g. graphics; especially suitable for partners such as Solution Providers, control cabinet builders, etc.	7KN2712-0CE40-0YC1 new
"Client (2)" option pack	Expansion for up to 2 clients	7KN2712-1CE40-0YC0
"Client (5)" option pack	Expansion for up to 5 clients	7KN2712-2CE40-0YC0
"powermanager Server" option pack	Additionally, powermanager server license for distributed systems without devices, web, etc.	7KN2712-4CE40-0YC0
System packages		
System 1	Package comprising 1× powermanager Extended 1× PAC4200 1× PAC3120 1× RS485 modules	7KN2715-1CE40-0YC0
System 3	Package comprising 1× powermanager Extended 3× PAC3220	7KN2715-3CE40-0YC0
System 4	Package comprising 1× powermanager Extended 1× PAC4200 4× PAC1600 1× RS485 module	7KN2715-4CE40-0YC0
System 5	Package comprising 1× powermanager Extended 5× PAC2200 transformer measurement Modbus TCP	7KN2715-5CE40-0YC0

Quick selection guide, page 10/4

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7KN Powercenter

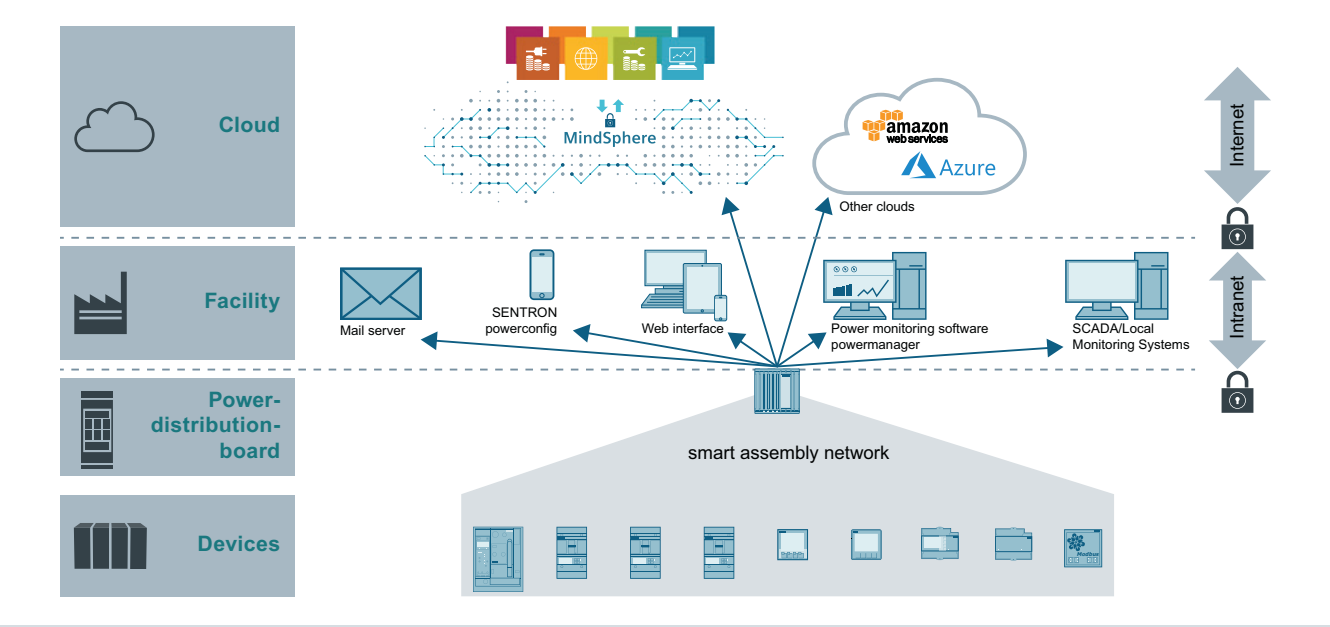
Edge/IoT-based data acquisition and visualization for low-voltage power distribution

7KN Powercenter 3000

- Offers a range of interfaces for the digitalization of low-voltage power distribution
  - One web interface for a clear overview of all connected devices
  - Very simple communication with the SENTRON MindSphere application. See MindSphere Apps
  - Low-voltage power distribution data interface to MindSphere, the IoT operating system from Siemens
  - Communication interface via Modbus TCP for diverse applications, e.g. SENTRON powermanager
- Provision of the 15 min energy values over 14 months for the connected devices as a basis for energy management according to ISO 50001.
  - Periodic emails
  - Explicit emails
  - Explicitly stored as a csv file
- Event message via email and web interface
- Flexible IT security features for protection against unauthorized access
- Easy commissioning using powerconfig
- Compact design, 24 V DC supply
- Events from the devices are sent as emails
- Display and export of daily trends
- Support of SENTRON powermind made easy
- Third-party devices can be used in the SENTRON environment, e.g. web interface and SENTRON powermind
- Applications in other clouds, e.g. aws, Azure, can be supplied with data via 7KN Powercenter 3000.
- Web interface in up to 10 languages

You can find more information on the Internet at
www.siemens.com/powermonitoring

Mounting	Interfaces	Protocols	Article No.
Standard rail mounting	2× Ethernet	Modbus TCP, http, MindSphere	7KN1310-0MC00-0AA8



Application areas 7KN Powercenter 3000

Quick selection guide, page 10/4

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SENTRON powermind new

Cloud-based solution for data visualization and analysis in power distribution systems

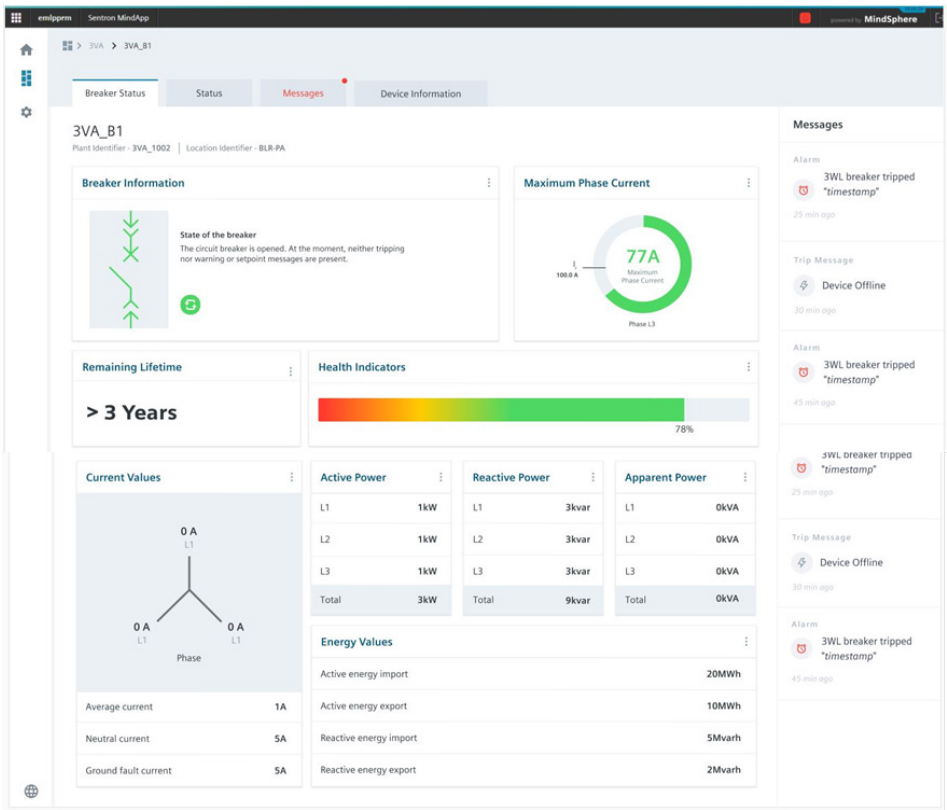
SENTRON powermind is aimed equally at energy managers, facility managers and/or operators. For energy managers, predefined, automated representations and analyses of energy data are available, such as:

- Comparison of energy consumption on weekdays and weekend with percentage day-by-day representation of the distribution of energy consumption to identify unnecessary energy consumption
- Comparison of energy consumption and power import during a selected period as compared with a reference period to assess the effectiveness of energy efficiency measures
- Day-by-day representation of the 15 min power demand, incl. min and max values to assess power peaks

SENTRON powermind offers the operator the following information and analyses:

- Status of the switching and protection devices, such as 3VA and 3WL
- Display of the maximum current value of an individual phase in relation to In
- Condition monitoring information about the condition of the contact system of each circuit breaker and also as an overview of all circuit breakers

You can find more information on the MindSphere Store at
www.dex.siemens.com/mindsphere/applications



Creating transparency
- Representation of device status/data, e.g. open, closed, tripped and maximum phase current, total power ...
- Notification on unusual deviations, for example, by email

Status display
- Information about the state of health of the device to take action proactively

Quick selection guide, page 10/4

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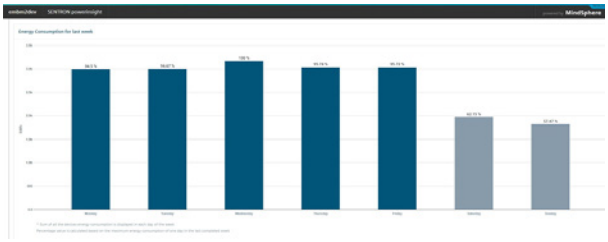
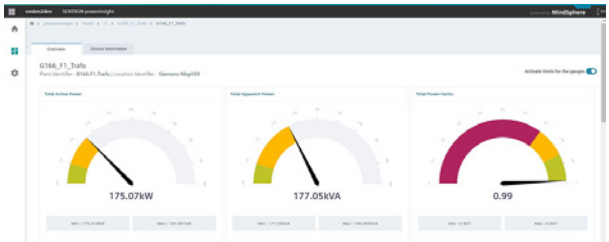
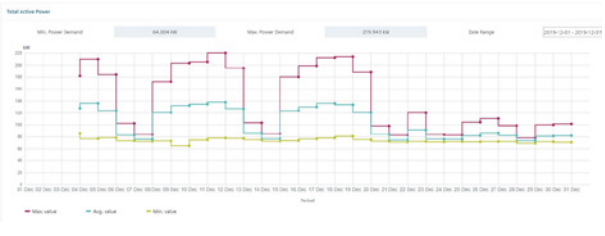




Creating transparency
- Representation of the power flow/power import in various parts of the power distribution system
- Comparison of the weekly energy consumption (percentage distribution of weekdays in comparison to weekend) to identify unusual energy consumption patterns and saving measures



Energy management
- Comparison of the energy consumption of two periods, for example, to assess the effectiveness of energy saving measures
- Representation of the active power as mean and min/max values

Quick selection guide, page 10/4

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SIMATIC Energy Suite

For integrated energy management

Highlights

- Simple and intuitive configuration instead of programming
- Automatic generation of the PLC energy program
- Convenient integration of measuring components from the Siemens portfolio and from other manufacturers
- Integrated into the TIA Portal and the automation system
- Archiving in WinCC Professional or PLC
- Seamless interfacing to Energy Manager PRO and Energy
- Analytics

Additional information on the SIMATIC Energy Suite:
www.siemens.com/energysuite

SIMATIC Modbus/TCP SENTRON PAC

For 7KM PAC3200/4200 measuring devices

Use and version	Valid for	Type	Article No.
Communication via the integrated PN interface for reading values out of PAC 3200 and PAC PAC 4200 devices, single license	1 CPU and up to 20 SENTRON PACs	Modbus/TCP 20 SENTRON PAC	6AV6676-6MA30-0AX0
	1 CPU and up to 100 SENTRON PACs	Modbus/TCP 100 SENTRON PAC	6AV6676-6MA30-1AX0
	1 CPU and up to 512 SENTRON PACs	Modbus/TCP 512 SENTRON PAC	6AV6676-6MA30-2AX0

Quick selection guide, page 10/4

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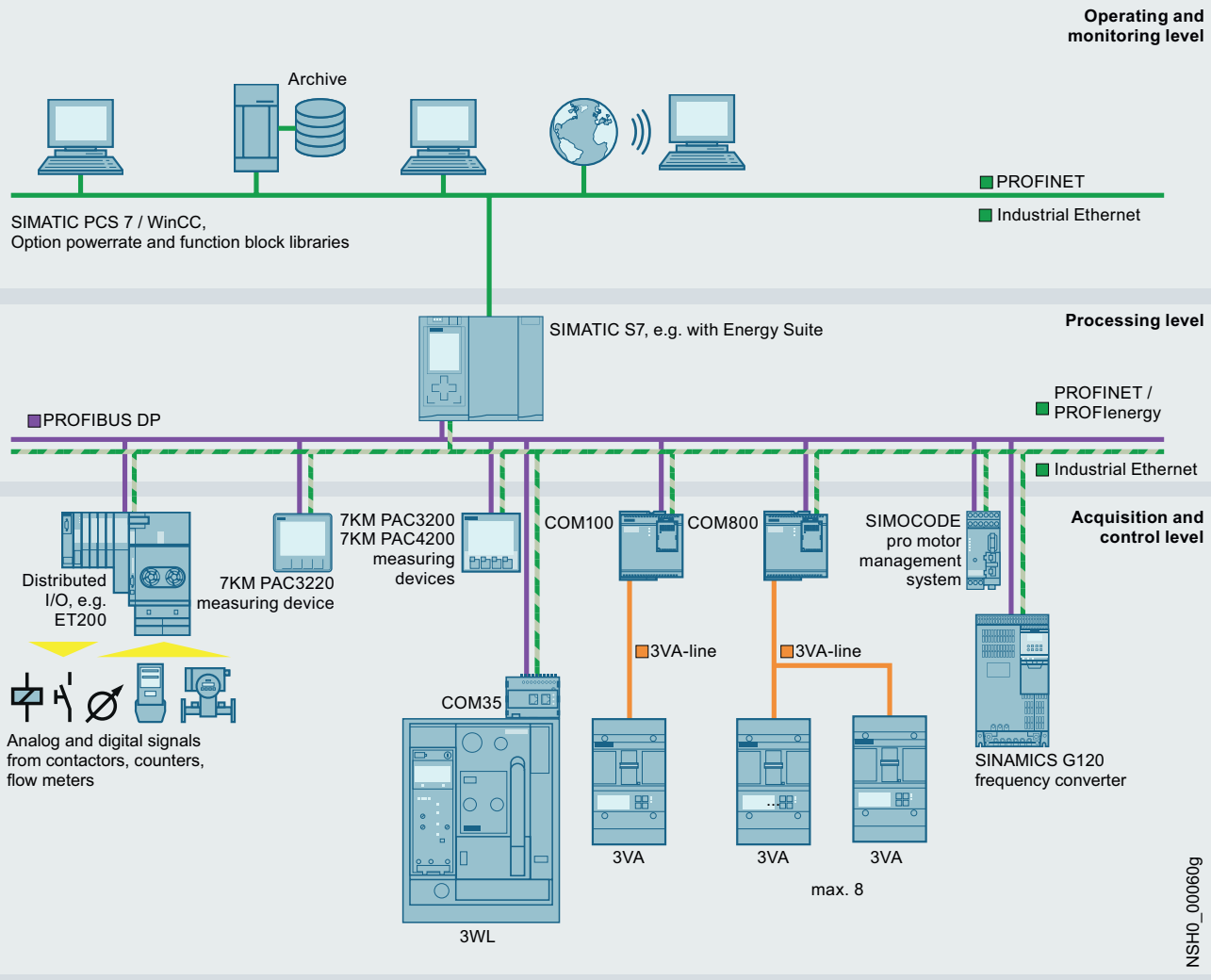
PAC/3WL/3VA SIMATIC PCS 7 library

For 7KM PAC3200/3220/4200 measuring devices and 3WL/3VA/3VL circuit breakers

Application	Version	Type of delivery	Article No.
PAC/3WL/3VA SIMATIC PCS 7 library			
• AS blocks and faceplates for integrating the 3WL/3VA/3VL circuit breakers into SIMATIC PCS 7, V8.x or V9.0 SP2 • For each SIMATIC PCS 7 Operator Station of the single station/server version, a license containing the following is required: – Engineering license for one SIMATIC PCS 7 Operator Station of the single station/server version – Runtime license for one automation system (1 required per automation system, further AS runtime licenses can be ordered separately)	Engineering and runtime software, software class A, 2-language (English, German), single license for one installation	Software and electronic documentation on DVD, engineering and runtime license as Certificate of License	3ZS2787-1CC30-0YG0
AS runtime license for PAC/3WL/3VA library for SIMATIC PCS 7			
License for one automation system in each case	Runtime software, software class A, 2-language (English, German), single license for one installation	Runtime license as Certificate of License without software and documentation	3ZS2787-1CC30-6YH0



Quick selection guide, page 10/4

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7KM PAC measuring devices

Basic units

Connec-tions	Power supply	Display	Interface	MID	PTB-A50.7	7KM PAC1020	7KM PAC2200 / PAC2200 CLP	7KM PAC3200T
Transformer measurement								
Screw terminals	Self-powered	With	M-Bus	With	Without	–	7KM2200-2EA30-1GA1	–
				Without	Without	–	7KM2200-2EA30-1CA1	–
			Modbus RTU	With	Without	–	7KM2200-2EA30-1HA1	–
				Without	Without	–	7KM2200-2EA30-1DA1	–
			Modbus TCP	With	With	–	7KM2200-2EA00-1JB1 new	–
					Without	–	7KM2200-2EA30-1JA1	–
				Without	Without	–	7KM2200-2EA30-1EA1	–
	AC/DC wide-voltage power supply unit	With	Modbus RTU	Without	Without	7KM1020-0BA01-1DA0 new	–	–
			Modbus TCP	Without	Without	–	–	–
		Without	Modbus TCP	Without	Without	–	–	7KM3200-0CA01-1AA0
	DC power supply unit with extra-low voltage	With	Modbus TCP	Without	Without	–	–	–
			Modbus RTU	Without	Without	–	–	–
Ring cable lug con-nection	AC/DC wide-voltage power supply unit	With	Modbus TCP	Without	Without	–	–	–
Direct measurement								
Screw terminals	Self-powered	With	M-Bus	With	Without	–	7KM2200-2EA40-1GA1	–
				Without	Without	–	7KM2200-2EA40-1CA1	–
			Modbus RTU	With	Without	–	7KM2200-2EA40-1HA1	–
				Without	Without	–	7KM2200-2EA40-1DA1	–
			Modbus TCP	With	With	–	7KM2200-2EA40-1JB1 new	
					Without	–	7KM2200-2EA40-1JA1	–
				Without	Without	–	7KM2200-2EA40-1EA1	–

10

Further technical specifications

		7KM1020-..	7KM2200-..	7KM3200-..	7KM3120-0..	7KM3120-1..
Basic data						
Installation		Front mounting	Standard mounting rail		Front mounting	
Mounting width		–	6 TE		–	
Control panel instrument		96 × 96 mm	–		96 × 96 mm	
External auxiliary voltage	50/60 Hz AC	100 ... 250 V	–	90 ... 276 V	100 ... 250 V ±10 %	–
	DC	110 ... 250 V ±10 %	–	110 ... 275 V	110 ... 250 V ±10 %	24 ... 60 V ±20 %
Measuring inputs						
Transformer connection	Secondary input current I_e	x/1 A or x/5 A	x/1 A or x/5 A		x/1 A or x/5 A	
Direct connection	Input voltage U_e 3 AC 50/60 Hz	400/230 V			690/400 V	
	Rated current I_n	–	65 A	–		

Quick selection guide, page 10/6

7KM PAC3120	7KM PAC3220	7KM PAC4200	7KM PAC5100	7KM PAC5200
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
7KM3120-0BA01-1DA0	–	–	–	–
–	7KM3220-0BA01-1DA0	7KM4212-0BA00-3AA0	7KM5212-6BA00-1EA2	7KM5412-6BA00-1EA2
–	–	–	7KM5212-6CA00-1EA8	7KM5412-6CA00-1EA8
–	7KM3220-1BA01-1EA0	7KM4211-1BA00-3AA0	–	–
7KM3120-1BA01-1EA0	–	–	–	–
–	–	7KM4212-0BA00-2AA0	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–

7KM3220-0..	7KM3220-1..	7KM4212-..	7KM4211-..	7KM5212-	7KM5412
Front mounting				Front mounting / Standard mounting rail	
–					
96 × 96 mm					
100 ... 250 V ±10 %	–	95 ... 240 V ±10 %	–	110 ... 230 V ±10 %	
100 ... 250 V ±10 %	24 ... 60 V ±20 %	110 ... 340 V ±10 %	22 ... 65 V ±10 %	24 ... 250 V ±10 %	
x/1 A or x/5 A					
690 / 400 V			500 / 289 V	690 / 400 V	
–					

Quick selection guide, page 10/6

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7KM PAC measuring devices

Accessories

		7KM PAC1020	7KM PAC3120 7KM PAC3220 7KM PAC4200
7KM PAC TMP2 standard mounting rail adapter			
	• Two-tier adapter for mounting a measuring device on a standard mounting rail • Front display • For manual intervention	7KM9900-0XA00-0AA0	
7KM PAC TMP mounting plate			
	• Adapter for mounting a measuring device on standard mounting rail • Display faces backwards towards standard mounting rail • Readout and evaluation of measurements solely via mains operation	7KM9900-0YA00-0AA0	
Compact holder			
	• Device holder for 7KM PAC3100 /3120/3200/3220/4200 • 10 holders for 5 PAC devices • For seamless side-by-side mounting of the devices (without spaces)	7KM9900-0GA00-0AA0	
Spare parts 7KM PAC			
	• Spare parts comprising: – Device holders for panel mounting (2X) – Screw terminal for connection of voltage inputs – Screw terminal for connection of current inputs – Terminal block inputs/outputs for 7KM PAC3100/4200 – Terminal block inputs/outputs for 7KM PAC3200 – RS485 terminal blocks for 7KM PAC3100	–	7KM9900-0SA00-0AA0

Quick selection guide, page 10/8

Expansion and communication modules

		7KM PAC3220 7KM PAC4200	COM100/800 (3VA)
7KM Switched Ethernet PROFINET communication module			
	• Latest PROFINET switching properties • S2 system redundancy for operation in H systems • CiR Configuration in Run • Firmware update via the modules for PAC4200 and PAC3220		
		7KM9300-0AE02-0AA0	
7KM PROFIBUS DP communication module			
		7KM9300-0AB01-0AA0	
7KM RS485 communication module			
		7KM9300-0AM00-0AA0 [1]	
7KM PAC 4DI/2DO expansion module			
		7KM9200-0AB00-0AA0	–
7KM PAC I(N), I(Diff), analog expansion module			
	• To add the following functions to the measuring inputs: – N conductor measurement – Two analog inputs, also for measuring non-electrical quantities such as temperature, water or air pressure – Residual current measurement via type A or type B summation current transformers		
		7KM9200-0AD00-0AA0	–

[1] Suitable for 7KM PAC4200 (especially for the Modbus TCP/RTU Gateway)

Residual-current transformers for 7KM PAC I(N), I(Diff), analog expansion module, see page 11/1

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7KT PAC measuring devices

Basic unit PAC1600

Connections	Version	Power supply	Display	Interface	MID	7KT PAC1600
Transformer measurement						
Screw terminals	3-phase	Self-powered	With	Modbus RTU	Without	7KT1661
					With	7KT1662
				M-Bus	Without	7KT1663
					With	7KT1664
				S0-Interface	Without	7KT1672
					With	7KT1673
	3-phase, universal	Auxiliary power: 100 ... 240 V AC, 110 ... 250 V DC 50/60Hz	With	–	Without	7KT1681
				Modbus RTU	Without	7KT1682
Direct measurement						
Screw terminals	1-phase	Self-powered	With	Modbus RTU	Without	7KT1651
					With	7KT1652
				M-Bus	Without	7KT1653
					With	7KT1654
				S0-Interface	Without	7KT1655
					With	7KT1656
	3-phase	Self-powered	With	Modbus RTU	Without	7KT1665
					With	7KT1666
				M-Bus	Without	7KT1667
					With	7KT1668
				S0-Interface	Without	7KT1670
					With	7KT1671

Quick selection guide, page 10/6

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PAC1200 multichannel current measuring system

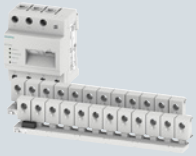
Connections	Version	Power supply	Display	Interface	MID	7KT PAC1200
Direct measurement						
Screw terminals	3-phase	Self-powered	Without	Modbus TCP	Without	7KT1260

PAC1200

		7KT PAC1200
Data manager with 7KT1260, sensor bars		
	Number of connections	**Article No.**
	3	7KT1233
	6	7KT1236
	9	7KT1238
	12	7KT1242
Data manager with 7KT1260, sensors		
	Current I_e	**Article No.**
	40 A	7KT1254
	63 A	7KT1255

10

PAC1200 Bundles



Data manager	Sensor bars	Sensors	18 bundle	24 bundle
1× data manager 7KT1260	2× 9-sensor bar 7KT1238	18× sensors 40 A 7KT1254	7KT1222	–
1× data manager 7KT1260	2× 12-sensor bar 7KT1242	24× sensors 40 A 7KT1254	–	7KT1223

Quick selection guide, page 10/6

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SEM3 multichannel current measuring system

Data manager

Connections	Version	Power supply	Display	Interface	MID	
Transformer measurement						
Screw terminals	3-phase	Self-powered	Without	Modbus TCP RS485 Modbus RTU	Without	US2:SEM3CONTROLLER

Further technical specifications	SEM3
Basic data	
Installation	Screw mounting
Measuring inputs	
Max. input voltage 50/60 Hz AC	480 V / 277 V
Standard current transformers	50 ... 1200 A / 0.1 A
Folding transformer	50 ... 2000 A / 0.1 A

Quick selection guide, page 10/6

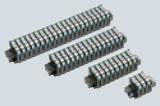
Accessories

Metering modules

- For recording measured values
- Accuracy of 0.2% or 1% for the entire measurement including current transformer
- Simple setting of phase configuration by means of slide switch
- Connection of a current transformer for measuring a phase
- Metering module is plugged into meter rack

Measuring accuracy	Article No.
0.2%	US2:SEM3PHAMETER
1%	US2:SEM3PLAMETER

Meter racks



Version	Article No.
For 3 metering modules	US2:SEM3RACK3
For 9 metering modules	US2:SEM3RACK9
For 15 metering modules	US2:SEM3RACK15
For 21 metering modules	US2:SEM3RACK21

Connecting cables

- 600 V insulated special cable for connecting meter racks to the data manager

Length	Article No.
0.3 m	US2:SEM3CAB12INCH
0.6 m	US2:SEM3CAB24INCH
0.9 m	US2:SEM3CAB36INCH

Standard current transformers

- Standard power cable brown and yellow, 1.82 m long
- Can be extended up to 100 m while still maintaining accuracy
- Transformer configuration is carried out in the data manager

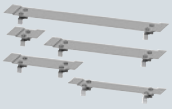
Output signal	Transformer transmission ratio	Article No.
100 mA	50 : 0.1	US2:SEM3SCCT50
	125 : 0.1	US2:SEM3SCCT125
	250 : 0.1	US2:SEM3SCCT250
	400 : 0.1	US2:SEM3SCCT400
	600 : 0.1	US2:SEM3SCCT600
	800 : 0.1	US2:SEM3SCCT800
	1200 : 0.1	US2:SEM3SCCT1200

Folding transformers

- Standard power cable brown and yellow, 1.82 m long
- Can be extended up to 100 m while still maintaining accuracy
- Transformer configuration is carried out in the data manager

Output signal	Transformer transmission ratio	Article No.
100 mA	50 : 0.1	7KT1280-5MA00
	125 : 0.1	7KT1280-5MA01
	250 : 0.1	7KT1280-5MA02
	400 : 0.1	7KT1280-5MA03
	600 : 0.1	7KT1280-5MA04
	800 : 0.1	7KT1280-5MA05
	1200 : 0.1	7KT1280-5MA06
	1600 : 0.1	7KT1280-5MA07
	2000 : 0.1	7KT1280-5MA08

DIN rail adapters



- 5 adapters for snapping onto standard mounting rail
- 1 adapter each for data manager and for meter racks with 3, 9, 15 and 21 metering modules
- Adapters are screwed onto the data manager or the meter racks

	Article No.
	US2:SEM3DINKIT

Quick selection guide, page 10/6

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Time and pulse counters

Mechanical counting mechanisms

Display	Resetting	Rated frequency	Rated control supply voltage U_c	48 × 48 mm	72 × 72 mm	–
Time counter						
00000.00 h	Without	–	10 ... 80 V DC	7KT5500	–	–
			10 ... 50 V DC	–	7KT5600	–
			12 ... 24 V DC	–	–	7KT5801
		50 Hz	24 V AC	7KT5505	–	7KT5802
			115 V AC	7KT5501	7KT5601	7KT5803
			230 V AC	7KT5502	7KT5602	7KT5804
		60 Hz	115 V AC	7KT5503	7KT5603	7KT5806
			230 V AC	7KT5504	7KT5604	7KT5807
Pulse counter						
0000000	Without	–	12 ... 24 V DC	–	–	7KT5811
		50/60 Hz	24 V AC	–	–	7KT5812
			230 V AC	–	–	7KT5814

Further technical specifications	7KT55..	7KT56..	7KT58..
Basic data			
Installation	Front mounting		Standard mounting rail
Mounting width	–		2 MW
Front frame	48 × 48 mm	72 × 72 mm	–
Display	Drum-type register		
Version	–	With narrow frame according to DIN 43700	–

Accessories			7KT55..	7KT56..	7KT58..
Cover					
	Size		Article No.	Article No.	Article No.
	55 × 55 mm		7KT9020	–	–
Sealing ring for cover					
	Degree of protection	Scope of supply	Article No.	Article No.	Article No.
	IP43 (in switchboards with smooth surfaces)	1 set = 5 units	7KT9000	–	–
Terminal cover					
	Degree of protection		Article No.	Article No.	Article No.
	IP20 (with connected conductors)		–	7KT9021	–

Quick selection guide, page 10/6

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Electronic counting mechanisms

Display	Resetting	Rated frequency	Rated control supply voltage U_c	
Time counter				
000000.0 h	Without	50/60 Hz	24 ... 240 V AC, 12 ... 150 V DC	7KT5821
	Electrical	50/60 Hz	24 ... 240 V AC, 12 ... 150 V DC	7KT5822
	Electrical and mechanical	50/60 Hz	24 ... 240 V AC, 12 ... 150 V DC	7KT5823
Pulse counter				
0000000	Electrical and mechanical	50/60 Hz	24 ... 240 V AC, 12 ... 150 V DC	7KT5833

Further technical specifications

	7KT58..
Basic data	
Installation	Standard mounting rail
Mounting width	2 MW
Display	LCD display

10

Quick selection guide, page 10/6

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Current transformers

For measuring purposes

				4NC [1]		7KT	3NJ [1]	
				1-phase		3-phase	1-phase	
Size	**Rated operational voltage U_e**	**Rated primary current I_{pr}**	**Rated power P_n**	**I_{sr} = 5 A**	**I_{sr} = 1 A**	**I_{sr} = 5 A**	**I_{sr} = 5 A**	**I_{sr} = 1 A**
Accuracy class 0.2s								
1	720 V	150 A	1 VA	4NC5121-2FA21	–	–	–	–
		200 A	2,5 VA	4NC5122-2FC21	–	–	–	–
		250 A	2,5 VA	4NC5123-2FC21	–	–	–	–
		300 A	5 VA	4NC5124-2FE21	–	–	–	–
		400 A	5 VA	4NC5125-2FE21	–	–	–	–
		500 A	5 VA	4NC5126-2FE21	–	–	–	–
5	720 V	600 A	5 VA	4NC5227-2FE21	–	–	–	–
		700 A	5 VA	4NC5228-2FE21	–	–	–	–
		800 A	5 VA	4NC5231-2FE21	–	–	–	–
		1000 A	5 VA	4NC5232-2FE21	–	–	–	–
Accuracy class 0.5								
1	720 V	100 A	1 VA	4NC5117-2DA21	4NC5117-0DA21	–	–	–
		150 A	2,5 VA	4NC5121-2DC21	4NC5121-0DC21	–	–	–
		200 A	5 VA	4NC5122-2DE21	4NC5122-0DE21	–	–	–
		250 A	5 VA	4NC5123-2DE21	4NC5123-0DE21	–	–	–
2	720 V	200 A	5 VA	4NC5222-2DE21	4NC5222-0DE21	–	–	–
		250 A	5 VA	4NC5223-2DE21	4NC5223-0DE21	–	–	–
		300 A	5 VA	4NC5224-2DE21	4NC5224-0DE21	–	–	–
		400 A	5 VA	4NC5225-2DE21	4NC5225-0DE21	–	–	–
3	720 V	400 A	5 VA	4NC5325-2DE21	4NC5325-0DE21	–	–	–
		500 A	5 VA	4NC5326-2DE21	4NC5326-0DE21	–	–	–
		600 A	5 VA	4NC5327-2DE21	4NC5327-0DE21	–	–	–
		750 A	5 VA	4NC5330-2DE21	4NC5330-0DE21	–	–	–
		800 A	5 VA	4NC5331-2DE21	–	–	–	–
4	720 V	800 A	10 VA	4NC5431-2DH21	4NC5431-0DH21	–	–	–
		1000 A	10 VA	4NC5432-2DH21	4NC5432-0DH21	–	–	–
		1200 A	10 VA	4NC5433-2DH21	4NC5433-0DH21	–	–	–
		1500 A	10 VA	4NC5435-2DH21	4NC5435-0DH21	–	–	–
		1600 A	15 VA	4NC5436-2DK21	–	–	–	–
		2000 A	20 VA	4NC5438-2DL21	–	–	–	–
		2500 A	25 VA	4NC5440-2DM21	–	–	–	–
		3000 A	30 VA	4NC5441-2DN21	–	–	–	–
Accuracy class 0.5 calibrated								
1	720 V	100 A	1,5 VA	–	–	–	3NJ6920-3BD23	3NJ6920-3BD13
		150 A	2,5 VA	–	–	–	3NJ6920-3BE23	3NJ6920-3BE13
		300 A	5 VA	–	–	–	3NJ6940-3BH23	3NJ6940-3BH13
		400 A	5 VA	–	–	–	3NJ6940-3BJ23	3NJ6940-3BJ13
		500 A	5 VA	–	–	–	3NJ6940-3BK23	3NJ6940-3BK13
		600 A	5 VA	–	–	–	3NJ6940-3BL23	3NJ6940-3BL23

[1] Überstrom-Begrenzungsfaktor FS5

Quick selection guide, page 10/8

				4NC [1]		7KT	3NJ [1]	
				1-phase		3-phase	1-phase	
Size	**Rated operational voltage U_e**	**Rated primary current I_{pr}**	**Rated power P_n**	**I_{sr} = 5 A**	**I_{sr} = 1 A**	**I_{sr} = 5 A**	**I_{sr} = 5 A**	**I_{sr} = 1 A**
Accuracy class 1,0								
1	720 V	50 A	1,2 VA	4NC5112-2CB21	4NC5112-0CB21	–	–	–
		60 A	1,2 VA	4NC5113-2CB21	4NC5113-0CB21	–	–	–
			1,25 VA	–	–	7KT1200	–	–
		75 A	2,5 VA	4NC5115-2CC21	4NC5115-0CC21	–	–	–
		100 A	2,5 VA	4NC5117-2CC21	4NC5117-0CC21	7KT1201	–	–
		150 A	2,5 VA	4NC5121-2CC21	4NC5121-0CC21	–	–	–
			3,75 VA	–	–	7KT1202	–	–
		200 A	5 VA	4NC5122-2CE21	4NC5122-0CE21	–	–	–
		250 A	5 VA	4NC5123-2CE21	4NC5123-0CE21	–	–	–
2	720 V	200 A	5 VA	4NC5222-2CE21	4NC5222-0CE21	–	–	–
		250 A	5 VA	4NC5223-2CE21	4NC5223-0CE21	–	–	–
		300 A	5 VA	4NC5224-2CE21	4NC5224-0CE21	–	–	–
		400 A	5 VA	4NC5225-2CE21	4NC5225-0CE21	–	–	–
3	720 V	400 A	5 VA	4NC5325-2CE21	4NC5325-0CE21	–	–	–
		500 A	5 VA	4NC5326-2CE21	4NC5326-0CE21	–	–	–
		600 A	5 VA	4NC5327-2CE21	4NC5327-0CE21	–	–	–
		750 A	5 VA	4NC5330-2CE21	4NC5330-0CE21	–	–	–
4	720 V	800 A	10 VA	4NC5431-2CH21	4NC5431-0CH21	–	–	–
		1000 A	10 VA	4NC5432-2CH21	4NC5432-0CH21	–	–	–
		1250 A	10 VA	4NC5434-2CH21	4NC5434-0CH21	–	–	–
		1500 A	10 VA	4NC5435-2CH21	4NC5435-0CH21	–	–	–
		2000 A	12,5 VA	4NC5438-2CJ21	4NC5438-0CJ21	–	–	–
		2500 A	12,5 VA	4NC5440-2CJ21	4NC5440-0CJ21	–	–	–
		3000 A	30 VA	4NC5441-2CN21	–	–	–	–

Accessories

Standard rail mounting

For transformer size	Article No.	Article No.	Article No.	Artikel-Nr.	Artikel-Nr.
1 and 5	4NC5923-5LT21	4NC5923-5LT21	–	–	–
2	4NC5925-5LT21	4NC5925-5LT21	–	–	–
3	4NC5930-5LT21	4NC5930-5LT21	–	–	–
4	4NC5940-5LT21	4NC5940-5LT21	–	–	–

Quick selection guide, page 10/8

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